



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,272	03/18/2004	Boon Keat Tan	70040133-1	7457

7590 02/03/2006  
AGILENT TECHNOLOGIES, INC.  
Legal Department, DL 429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER

YAM, STEPHEN K

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/804,272

Applicant(s)

TAN ET AL.

Examiner

Stephen Yam

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This action is in response to Amendments and remarks filed on November 22, 2005. Claims 1-12 are currently pending.

#### ***Claim Objections***

1. Claims 2, 9, and 10 are objected to because of the following informalities:

In Claim 2, "said trim wavelength" lacks proper antecedent basis- for examination purposes, Examiner interprets the claim as intending to recite "said first trim wavelength".

In Claim 9, line 8, "said light source" lacks proper antecedent basis- for examination purposes, Examiner interprets the claim as intending to recite "a layer of material overlying a corresponding one of said photodetectors" as indicated in the amendment for Claim 1.

In Claim 10, line 2, "said first wavelength" should be replaced with "said first trim wavelength".

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto et al. US Patent No. 5,648,653.

Regarding Claim 1, Sakamoto et al. teach (see Fig. 2) a color sensor, comprising a plurality of photodetectors (6a-6c), a plurality of primary color filters (5c-5e), each primary color filter comprising a layer of material overlying a corresponding one of said photodetectors (see Fig. 2), each primary color filter transmitting light in a corresponding band of wavelengths (see Col. 4, lines 30-32) about a characteristic wavelength (red, green, blue), that primary filter transmitting more light at said characteristic wavelength than that primary color filter transmits at a wavelength outside of said band of wavelengths (see Col. 4, lines 30-32), and a first trim filter (4) overlying all of said photodetectors (see Fig. 2), said first trim filter comprising a layer of material that attenuates light at a first trim wavelength ( $<400\text{nm}$  or  $>650\text{nm}$ - see Fig. 6-10, 12 and Col. 4, lines 32-35) more than said first trim filter attenuates light at each of two of said characteristic wavelengths (see Fig. 6-10, 12).

Regarding Claim 2, Sakamoto et al. teach said first trim filter further attenuates light at a second trim wavelength ( $>650\text{nm}$ - see Fig. 6-10, 12), said first trim wavelength ( $<400\text{nm}$ ) being less than one of said characteristic wavelengths (green light which is approximately  $500\text{-}550\text{nm}$  wavelength) and said second trim wavelength ( $>650\text{nm}$ ) being greater than that characteristic wavelength.

Regarding Claim 3, Sakamoto et al. teach said first trim filter comprising an interference filter (see Col. 4, lines 32-35, 57-62 and Col. 5, lines 38-48).

Regarding Claim 6, Sakamoto et al. teach said color filters located between said first trim filter and said photodetectors (see Fig. 2).

Art Unit: 2878

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 5, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al.

Regarding Claims 4, 5, and 9, Sakamoto et al. teach the sensor in Claim 1, according to the appropriate paragraph above. Regarding Claim 4, Sakamoto et al. teach (see Fig. 2) a substrate (2) having said photodetectors located therein and the first trim filter comprising a first trim filter layer (4). Regarding Claim 9, Sakamoto et al. teach (see Fig. 2 and 3) a method for fabricating a color sensor, said method comprising providing a substrate (2) having a plurality of photodetectors (6a-6c), bonding a color filter layer (3b) to said substrate, said color filter layer comprising a plurality of primary color filters (5c-5e), bonding a first trim filter layer (4) to said color filter layer such that said first trim filter layer covers all of said photodetectors (see Fig. 2), each primary color filter comprising a layer of material overlying a corresponding one of said photodetectors (see Fig. 2), each primary color filter transmitting light in a corresponding band of wavelengths (see Col. 4, lines 30-32) about a characteristic wavelength (red, green, blue), that primary filter transmitting more light at said characteristic wavelength than that primary color filter transmits at a wavelength outside of said band of wavelengths (see Col. 4, lines 30-32), wherein said first trim filter comprises a layer of material that attenuates light at a first trim wavelength (see Col. 4, lines 32-35) more than said first trim filter attenuates light at each of two of said characteristic wavelengths (see Fig. 6-10). Sakamoto et al. do not teach the first trim

Art Unit: 2878

filter layer on said substrate and said color filters on said first trim filter layer (i.e.- the components layered in substrate -> first trim filter layer -> color filter layer order). It is well known in the art to exchange the orders of filter layers according to a desired physical configuration, as exchanging the positions of successive wavelength filters within an optical system provide an equivalent end result for incident light upon a photodetector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the first trim filter layer on said substrate and said color filters on said first trim filter layer, in the sensor of Sakamoto et al., since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding Claim 10, Sakamoto et al. teach said first trim filter further attenuates light at a second trim wavelength ( $>650\text{nm}$ - see Fig. 6-10, 12), said first trim wavelength ( $<400\text{nm}$ ) being less than one of said characteristic wavelengths (green light which is approximately  $525\text{nm}$  wavelength) and said second trim wavelength ( $>650\text{nm}$ ) being greater than that characteristic wavelength, said first trim filter layer attenuating light at said second trim wavelength more than said first trim filter layer attenuates light at each of that characteristic wavelength (since red, green, and blue light have  $450\text{nm}$ ,  $525\text{nm}$ , and  $600\text{nm}$  wavelengths, respectively).

Regarding Claim 11, Sakamoto et al. teach said first trim filter layer comprising a plurality of transparent layers in which adjacent layers have different indices of refraction (see Col. 4, lines 57-67 and Col. 5, lines 38-48).

6. Claims 7, 8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. in view of Sulzbach et al. US Patent No. 3,996,461.

Art Unit: 2878

Regarding Claims 7, 8 and 12, Sakamoto et al. teach the sensor and method of Claims 1 and 9, according to the appropriate paragraph above. Sakamoto et al. do not teach a second trim filter, said second trim filter comprising a layer of material that preferentially attenuates light at a second wavelength that is different from each of said characteristic wavelengths and said first trim wavelength, with the color filters located between the first and the second trim filter. Sulzbach et al. teach (see Fig. 1-2) a similar sensor having a first trim filter (L, H) with a first trim wavelength and a second trim filter (L", H"), said second trim filter comprising a layer of material that preferentially attenuates light at a second wavelength that is different from characteristic wavelengths and said first trim wavelength (see Col. 2, lines 23-52), with a color filter (L', H') located between the first and second trim filters (see Fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a second trim filter comprising a layer of material that preferentially attenuates light at a second wavelength that is different from characteristic wavelengths and said first trim wavelength, such that the color filter is located between the first and second trim filters, as taught by Sulzbach et al., in the sensor of Sakamoto et al., to more precisely define the desired spectral detection response and the transmittance and attenuation wavelengths for greater color accuracy and matching.

### *Response to Arguments*

7. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

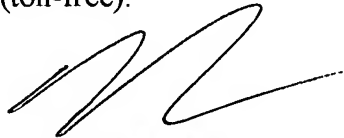


Art Unit: 2878

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SY

SY



**THANH X. LUU**  
**PATENT EXAMINER**